



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,985	02/27/2004	Michael Wimmer	FA1193USNA	6843
23906 7590 06/30/2008 E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1122B 4417 LANCASTER PIKE WILMINGTON, DE 19805				
EXAMINER				
MAKI, STEVEN D				
ART UNIT		PAPER NUMBER		
1791				
NOTIFICATION DATE		DELIVERY MODE		
06/30/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

### Office Action Summary

**Application No.**

10/788,985

**Applicant(s)**

WIMMER ET AL.

**Examiner**

Steven D. Maki

**Art Unit**

1791

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 4-7 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-7, 9-11 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 041708
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

1) A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4-17-08 has been entered.

2) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3) **Claims 1, 4-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 723 (JP 11-162723) in view of Europe 059 (EP 717059) and optionally Young (US 5500462).**

Japan 723, directed to manufacturing a core for a motor or a transformer, discloses providing an AQUEOUS COMPOSITION comprising:

100 parts epoxy resin based on bisphenol-A-type,

1-40 parts hardening agent, which may *comprise* a latency curing agent such as dicyandiamide (paragraphs 25, 26 and 31),

**water;**

**additives** such as silica, pigments, "membrane formation assistant" and "dispersibility improver";

coating steel sheets with the composition; drying the coated steel sheets by heating to 100-300 degrees C; assembling the dried coated sheets; and applying heat and pressure to the assembled dried coated sheets to cure the composition and thereby laminate / bond the sheets together. Japan 723 prefers using (1) latency curing agent such as dicyandiamide and (2) phenol resin wherein the amount of latency curing agent (e.g. dicyandiamide) is 2-200 parts by weight based on 100 parts phenol resin (paragraphs 14, 16 and 27-30). Japan 723 teaches baking (drying) the coated sheet at 100-300 degrees C such that the curing of the coating does not progress too far and then assembling the coated sheets and applying heat and pressure to cure the coating and bond the sheets together. See paragraphs 1, 17 and 34-28 of machine translation. Japan 723 teaches, for example, laminating by heating to 200 degrees C as shown in figure 2 and applying a pressure of 10 kgf/cm<sup>2</sup> (0.98 N/mm<sup>2</sup>). Japan 723 teaches that excellent bond strength at elevated temperature and good corrosion resistance is obtained. See abstract and machine translation. One of ordinary skill in the art would readily understand that "membrane formation assistant" in paragraph 32 of the machine translation of Japan 723 as meaning an agent / additive which facilitates formation of the coating on the sheet. Also, one of ordinary skill in the art would readily understand "dispersibility improver" in paragraph 32 of the machine translation of Japan 723 as meaning an agent / additive which improves dispersion in the aqueous coating composition.

As to **part A1 of claim 1**, Japan 723 teaches using 100 parts epoxy resin.

As to **part B1 of claim 1**, it would have been obvious to use 1 to 25 parts dicyandiamide in Japan 723's composition in view of Japan 723's teaching to use 1-40 parts hardening agent (based on 100 parts epoxy resin) *comprising* latent curing agent such as dicyandiamide.

As to **part C1 of claim 1**, it would have been obvious to use 0.1 to 10 parts additives since Japan 723 teaches that additional materials such as rust-proofing additives, color pigment and defoaming agent may be blended in the composition. See paragraph 33 of the machine translation. The term "additives" is considered to clearly read on rust-proofing additives, color pigment or defoaming agent. With respect to "phenol resin", Japan 723 prefers, but does require phenol resin. See paragraphs 25-32. Alternatively, it would have been obvious to use 0.1 to 10 parts additives wherein *the additives comprise phenol resin* in view of Japan 723's teaching to use 1-40 parts hardening agent (based on 100 parts epoxy resin) comprising (1) latent curing agent such as dicyandiamide and (2) *phenol resin* wherein the amount of the latent curing agent such as dicyandiamide is 2-200 parts by weight (based on 100 parts phenol resin). In claim 1, "additives" in claim 1 is sufficiently broad to read on phenol resin. It is noted that that the original specification fails to contain a special definition of additives that excludes phenol resin. It is further noted that the specification describes "additives as component C), such as for example ... catalysts". The expression "such as for example" is open language instead of closed language. In view of this description, the term "additives" must be broadly interpreted. The claims are given their broadest

Art Unit: 1791

reasonable interpretation consistent with the disclosure. The term "additives" is properly and reasonably interpreted as reading on phenol resin.

As to **part D1 of claim 1**, it would have been obvious to one of ordinary skill in the art to provide Japan 723's composition such that it comprises 0.1-120 parts at least one organic solvent as flow agent since (1) Japan 723, directed to the epoxy art, teaches that the aqueous composition containing epoxy resin may contain "membrane formation assistant" and (2) Europe 059, also directed to the epoxy art, suggests using solvents to aid in coalescence of the ingredients for optimum film formation and identifies particularly useful solvents as being lower molecular weight glycol ethers such as diethylene glycol monobutylether (page 7 lines 28-39). Hence, Japan 723 discloses coating a steel sheet with a composition comprising epoxy and hardening agent to form a film on the steel sheet. Japan 723 is considered to disclose using an "agent" with the epoxy and curing agent to assist formation of the film coated on the steel sheet. Japan 723 is silent as to the composition of this agent. However, Europe 059 suggests assisting formation of a film during a coating step by including an "agent" such as solvent (e.g. diethylene glycol monobutyl ether) with the epoxy resin and curing agent. In view of Japan 723's teaching to coat a steel sheet with a composition comprising epoxy and hardening agent to form a film on the steel sheet and Japan 723's recommendation in paragraph 32 to additionally use a "membrane formation assistant" (film forming aid), one of ordinary skill in the art would look to the epoxy art (e.g. Europe 059) for suitable film forming aids (e.g. solvent) - only the expected results (improved film formation) being obtained.

As to **part E1 of claim 1**, the claimed amount of 50-200 parts water would have been obvious and could have been determined without undue experimentation in view of (1) Japan 723's teaching to use water with the epoxy to form an aqueous composition that may for example be applied with a thickness of 1-12 micrometers using roll coat method, dip method or spray method and optionally (2) Young's suggestion to form a stable aqueous composition, which may be used in the manufacture of laminates, such that it comprises epoxy resin, dicyanamide, and water with a 30-80% solids content and so that a film of the aqueous composition may be cast.

**The use of "consists" fails to require a different composition than that suggested by the applied prior art. The use of phenol resin in Japan 723 is optional. Alternatively, the use of "consists" in claim 1 fails to exclude the use of phenol resin as additional curing agent because "additives" in claim 1 is sufficiently broad to read on phenol resin.** It is emphasized that Japan 723 considers the principal components to be the base resin and the epoxy resin curing agent. See paragraph 32 of machine translation. As discussed above, Japan 723 requires a curing agent. It is acknowledged that Japan 723 prefers using phenol resin and latency curing agent (paragraphs 27-30). However, Japan 723 teaches that the curing agent may be "latency curing agents" (paragraph 26) and Japan 723 discloses dicyandiamide (paragraph 31). Thus Japan 723 does not require the use of phenol resin. Alternatively, it is noted that that the original specification fails to contain a special definition of "additives" that excludes phenol resin. It is further noted that the specification describes "additives as component C), such as for example ... catalysts".

Art Unit: 1791

In view of this description, the term "additives" must be broadly interpreted. The term "additives" is properly and reasonably interpreted as reading on phenol resin. **As a related matter, claim 1 fails to require either explicitly or inherently a polyaddition reaction because claim 1 fails to require using dicyandiamide as the only curing component.**

As claim 4, the claimed epoxy resin content of 40-70 wt% / solids content of 30-60% would have been obvious and could have been determined without undue experimentation in view of (1) Japan 723's teaching to use water with the epoxy to form an aqueous composition that may for example be applied with a thickness of 1-12 micrometers using roll coat method, dip method or spray method and optionally (2) Young's suggestion to form a stable aqueous composition, which may be used in the manufacture of laminates, such that it comprises epoxy resin, dicyanamide, and water with a 30-80% solids content and so that a film of the aqueous composition may be cast.

As to claim 5, the claimed number average molar mass of 700-5000 and epoxy equivalent weight of 400-6000 would have been obvious in view of (1) Japan 723's teaching to use epoxy resin in the aqueous composition for laminating steel sheets for a motor / transformer and (2) Young et al's suggestion to use epoxy resin having a molecular weight of 200-6000 and an epoxide equivalent of for example 525-550.

As to claim 6, Young suggests using micronized dicyandiamide having a particle size of less than 5 microns.

As to claim 7, Europe 059 suggests diethylene glycol monobutyl ether.



As to claim 9, it would have been obvious to apply Japan 723's composition on untreated and uncoated electric steel sheet as a one layer coating with a thickness of 3-8 microns since Japan 723 suggests applying the composition on a steel sheet (paragraph 17 of machine translation) at a thickness of 1-12 microns (paragraph 33 of machine translation).

As to claim 10, Japan 723 teaches drying at 100-300 degrees C such as 130-230 degrees C.

As to claim 11, Japan 723 teaches laminating by for example heating to 200 degrees C and applying a pressure of about 1 N/mm<sup>2</sup>.

**4) Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 723 in view of Europe 059 and optionally Young as applied above and further in view of Stark (US 4307212) or Kohn et al (US 2962410).**

As to claim 13, it would have been obvious to one of ordinary skill in the art to additionally use an organo-metallic compound as claimed in view of either (1) Stark's suggestion to add an ortho-titanic ester such as tetraisopropyl titanate to a curable epoxy resin composition to initiate cure or (2) Kohn's suggestion to add an ortho-titanic ester such as tetraisopropyl titanate to a curable epoxy resin composition to provide better temperature stability.

#### Remarks

5) Applicant's arguments with respect to claims 1, 4-7, 9-11 and 13 have been considered but are moot in view of the new ground(s) of rejection. With respect to this

new ground of rejection, Japan 723 is interpreted as preferring but not requiring phenol resin.

With respect to the issue of whether or not the claims exclude phenol resin. applicant's arguments filed 4-17-08 have been fully considered but they are not persuasive.

Applicant argues that "additives" excludes "phenol resins". Examiner disagrees and maintains his position that "additives" in claim 1 is sufficiently broad to read on phenol resin. Claim 1 fails to require "1 to 25 parts per weight of curing component wherein dicyandiamide is the only curing component".

Applicant argues and examiner agrees that "consists of" signifies a closed system. One of the components in this closed system is "additives". If "additives" as set forth in claim 1 reads on --phenol resin--, then the "consists of" language fails to exclude phenol resin. As already mentioned, examiner holds that "additives" in claim 1 is sufficiently broad to read on phenol resin.

With respected to the use of the term "additives" in the specification, applicant states: "Applicants have merely listed several but not all of the additives that can be used in their process" (page 8 of response filed 4-17-08). Examiner agrees with this statement and adds that one of ordinary skill in the art would have understood that additives may be defined to include a curing component. In support of this factual finding examiner has cited Gunasekaran et al (US 6,548,189), Yamaji et al (US 6,569, 513), Japan 927 (JP 02-124927) and Japan 699 (JP 54-097699). Gunasekaran et al discloses an epoxy adhesive and describes "further including additive selected from

Art Unit: 1791

group including curing agents, bonding enhancers, hardeners, flexibilizers, tackifiers, and mixtures thereof" (abstract). Yamaji et al discloses an epoxy resin composition for a prepreg and describes "Additives such as curing agent, curing catalyst, filler, surfactant, silane coupling agent, and the like can be optionally added to the epoxy resin" (col. 3 lines 51-57). Japan 927 discloses an epoxy resin molding material and describes "additives such as a crosslinking agent, a curing agent, a curing accelerator, a filler, a releasing agent, a coloring material and a coupling agent" (abstract). Japan 699 discloses an epoxy resin composition and describes "Additives such as inorganic fillers, phenol resins, petroleum resins, pigments, etc" (abstract). The above evidence shows that one of ordinary skill in the epoxy art (in contrast to the paint art) would have readily understood that the term "additives" does not have a single definition and that the term "additives" may be defined as including a curing component such as phenol resin. Thus, claim 1 does not exclude phenol resin.

Applicant argues that that the specification page 4 lines 22-26 clearly points out what they consider to be additives and a phenol resin is not included. Examiner agrees that page 4 lines 22-26 of the specification mentions additives. Examiner adds that page 4 lines 22-23 recite "additives as component C), such as for example leveling agents, catalysts, pigments and slip additives" (emphasis added). Page 4 lines 22-26 describes a non-exclusive list for the additives.

With respect to Japan 927, applicant argues that the examiner's statement that phenol resin is a crosslinking agent apparently contradicts the examiner's position that phenol resin is other than a crosslinking agent. This argument is incorrect. The

examiner's position is not that phenol resin is other than a crosslinking agent. In contrast, examiner's position is that Japan 927 teaches that the "additive" may be a crosslinking agent such as phenol resin.

Applicant argues that the term "additives" is clearly supported by the definition of additives" in Ullmann's Encyclopedia of Industrial Chemistry. Examiner agrees that Ullmann's Encyclopedia of Industrial Chemistry describes "paint additives". However, the claimed composition is an epoxy resin adhesive (instead of a paint) since the composition, which contains epoxy resin, is used to bond the sheets with each other (instead of decorating a wall). See last two line of claim 1. More importantly, nothing in the original disclosure supports applicant's contention that the term "additives" is limited to the paint additives described in Ullmann's Encyclopedia of Industrial Chemistry. Ullmann's Encyclopedia of Industrial Chemistry is not mentioned in the original disclosure. Furthermore, Gunasekaran et al, Yamaji et al, Japan 927 and Japan 699 show one of ordinary skill in the art that the term "additives" does not have the narrow construction argued by applicant. In particular, Gunasekaran et al, Yamaji et al, Japan 927 and Japan 699 show one of ordinary skill in the art that, the term "additives" is not limited to a single definition which requires the term "additive" to exclude phenol resin. This conclusion is consistent with and supported by the broad language used in the specification "additives as component C), such as for example leveling agents, catalysts, pigments and slip additives".

Applicant argues that Gunasekaran et al, Yamaji et al, Japan 927 and Japan 699 do not clearly point out what is meant by the term "additive". Examiner disagrees.

There is no ambiguity in the description of "additive" in Gunasekaran et al, Yamaji et al, Japan 927 or Japan 699. The fact that the description of "additives" in the above four references differ from each other shows that the term "additives" is not limited to a single fixed definition.

Applicant argues that Ullmann teaches that phenolic resin is a curing agent for epoxy resin. Examiner agrees that Ullmann teaches that phenolic resin is a curing agent for epoxy resin (page 408), phenolic resins react with high molecular mass epoxy resins (page 409) and phenolic resins can be used for coatings (page 419). However, none of these teachings support the finding that the term "additives" and "curing agent" are necessarily mutually exclusive concepts.

Applicant states: "The claims of Applicants' invention clearly state that a coating layer of an aqueous composition is applied to steel sheets NOT an epoxy adhesive as taught by the prior art ..." (page 9 of response filed 4-17-08). This argument is not persuasive because, the claimed composition, which contains epoxy resin, is used as an adhesive. See last two lines of claim 1.

With respect to applicant's arguments regarding Europe 059 and Young, examiner comments that Europe 059 provides ample motivation (aid in coalescence of ingredients for optimum film formation) to use solvent such as diethylene glycol monobutylether in Japan 723's composition and Young provides guidance (30-80% solids content) as to how much water to use in Japan 723's aqueous composition.

Art Unit: 1791

With respect to applicant's arguments regarding Stark and Kohn, Stark or Kohn provide ample motivation to add ortho-titanic ester to Japan 723's epoxy resin composition. See statement of rejection for claim 13.

6) No claim is allowed.

7) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven D. Maki/  
Primary Examiner, Art Unit 1791

Steven D. Maki  
June 21, 2008